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## A new species of genus *Teulisna* WALKER (Lepidoptera: Erebidae: Arctiinae) from India

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**Abstract.** A new species, *Teulisna unicornuta* sp. nov., from South India is described. Additional descriptions of the external male genitalia of *T. karena* ČERNÝ, *T. protuberans* (MOORE) and *T. obliquistria* HAMPSON are provided. Female genitalia of *T. karena* ČERNÝ are described for the first time. A current list of *Teulisna* species is included.

**Key words:** Lithosiini, *Teulisna*, new species, taxonomy, list of species.

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### I. INTRODUCTION

The Lithosiini genus, *Teulisna* WALKER, 1862 was proposed for its type species *plagiata* WALKER from Sarawak, Borneo. The genus is represented by 34 species of worldwide distribution, of which only eight are known from India (SINGH et al. 2014). After its synonymization with *Eilema* HÜBNER, 1819 by HAMPSON (1900), followed by STRAND (1922), *Teulisna* was again resurrected by ARORA & CHAUDHARY (1982). HOLLOWAY (1982, 2001) in his works on Bornean Lithosiinae, described the uniqueness in genitalia of *Teulisna* species which is expressed by the vinculum developed into a squarish frame, indented slightly at the distal margin, that supports a membrane on which are often diverse setose patches, scent pencils and other structures.

In the present paper a new species, *Teulisna unicornuta*, sp. nov., is described. Additionally, external genitalia of *T. karena* ČERNÝ, *T. protuberans* (MOORE) and *T. obliquistria* HAMPSON have also been described fully for the first time. As a consequence of previous synonymization of the genus, some of the species are probably still incorrectly included in *Eilema*. Presently, the genus include 34 species which have been studied after its

resurrection by ARORA & CHAUDHARY (1982), and includes: two species studied by ARORA & CHAUDHARY (1982), four by HOLLOWAY (1982), three by FANG (2000), fifteen by HOLLOWAY (2001), four by ČERNÝ & PINRATANA (2009), four by BUCSEK (2012), one shifted from *Eilema* by SINGH et al (2014) and the one new species described here. A current list of species of the genus *Teulisna* is provided.

## II. MATERIALS AND METHODS

The studied material was collected using a vertical sheet light trap. The collected specimens were processed using standard techniques in lepidopterology as adopted by KIRTI et al. (2013). The holotype and paratype of the new species are deposited in the Department of Zoology & Environmental Sciences Museum, Punjabi University, Patiala, within the Patiala/ Rahul JOSHI collection (PUP/ RJ).

### Abbreviations for morphology

AED: aedeagus, CO.PR: costal process, CRP.BU: corpus bursae, CU: cucullus, Cu<sub>1</sub>, CU<sub>2</sub>, first and second cubital vein, DU.BU: ductus bursae, JX: juxta, M<sub>1</sub> - M<sub>3</sub>: first to third median veins, PAP.A: papilla analis, R<sub>1</sub> - R<sub>5</sub>: first to fifth radial vein, Rs: radial vein, SA: saccus, Sc: subcosta, Sc+R<sub>1</sub>: stalk of Sc + R<sub>1</sub>, SL.PR: saccular projection, TG: tegumen, UN: uncus, VES: vesica, VIN: vinculum, VLA: valvula, VLV: valva, A<sub>1</sub>, A<sub>2</sub>: first, second anal vein.

## III. SYSTEMATICS

### Genus *Teulisna* WALKER 1862

*Teulisna* WALKER, 1862, *J. Proc. Linn. Soc. (Zool.)*, 6: 109.

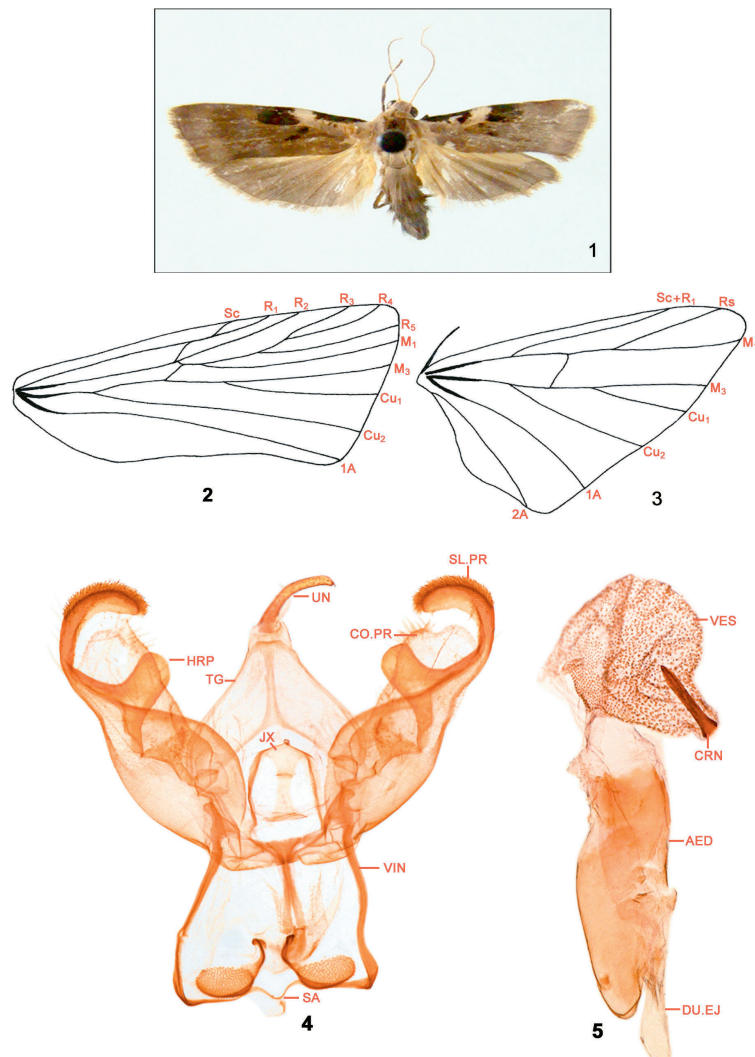
**Type species:** *Teulisna plagiata* WALKER, 1862.

**Distribution:** India; Sri Lanka; China, Myanmar; Borneo and Java.

### *Teulisna unicornuta* KIRTI, JOSHI & SINGH, sp. nov.

(Figs 1-5)

**Differential diagnosis.** The new species differs from all known congeneric species in having a unique wing pattern and spots. It lacks a broad black medial patch or postmedial line (broad patch present in *Teulisna quadratella*, *karena*, *curviplaga*, *uniplaga*, *submontana*, *plagiata*, *reflexa*, *maculata*, *tricornuta* and *flexusa* whereas a prominent, curved central line is present in *nebulosa*, *montanebula*, *mithunoides*). Forewing is linear and smooth (arched in *tumida* and *protuberans*), forewing with black costal fascia from base broadening towards interrupted in middle (costal fascia absent in *Teulisna steineri*, *murina*, *nigrisqama*, *diastrophia*, *pendleburyi*, *impara*, *locus*, *nigricauda*, *montanebula*, *pallidicauda*, *macropallida*, *pseudochiloides*). Further, in male genitalia, shape of distal costal and saccular process, presence of prominent harpae and single large cornutus in vesica, separates it from its morphologically closely allied species.



Figs 1-5. *Teulisna unicornuta* JOSHI sp. nov. 1 – adult male; 2 – forewing venation; 3 – hindwing venation; 4 – male genitalia; 5 – aedeagus.

**E t y m o l o g y.** The new name of the species refers to the presence of single large cornutus in aedeagus vesica.

**M a t e r i a l e x a m i n e d.** Holotype, male, India: Karnataka, Mudikeri, 1100 m, 19.x.2009 (coll. R. JOSHI). Paratype, male, India: Karnataka, Mudikeri, 1100 m, 19.x.2009 (coll. R. JOSHI) (Registration Series No. PUP/RJ-117).

**T y p e l o c a l i t y.** Mudikeri (Karnataka).

**D e s c r i p t i o n.** Head with frons yellow; vertex brown. Antennae simple, brown. Labial palpi porrect, short, black. Proboscis long, coiled.

Thorax with patagia and tegulae brownish; black spot at mesothorax; pectus black. Forewing greyish brown, costa not lobed; basal area yellowish white; a black costal patch up to middle, broader proximally, interrupted by yellowish white scales near two antemedial, obliquely placed black spots below discal cell; hindwing fuscous grey brown; basal and hind margin yellowish. Legs fuscous; hind leg with two pairs of tibial spurs.

Abdomen grey brown; extremity black. Male genitalia: uncus long, slender, slightly curved; tegumen broad, V-shaped, membranous, longer than uncus; vinculum U-shaped, longer than tegumen, arms diverging distally, vincular membrane medially joined by transverse line, setosed patches at base; saccus present, short. Valvae with costal margin wavy, sparsely setose; cucullus membranous; valvula strongly curved and sclerotised, overlapping cucullus, and densely setose with short setae apically; harpe long, blunt, thumb-like; sacculus excurved near middle. Juxta weakly sclerotized, rectangular; transtilla membranous. Aedeagus moderately long and broad; vesica globular with scrobination; cornutus single, long, nail-like; ductus ejaculatorius entering subapically.

W i n g s p a n: male 26 mm.

D i s t r i b u t i o n. South India.

***Teulisna karena* ČERNÝ, 2009**

(Figs 6-11)

*Teulisna plagiata* FANG, 2000, *Fauna Sin., Ins.*, **19**: 229.

*Teulisna karena* ČERNÝ, 2009, *Moths of Thailand*, **6**: 132.

M a t e r i a l e x a m i n e d. India: Arunachal Pradesh, Talea, 1 male, 07.iv.09; Ziro, 1 male, 1 female, 02.iv.09. Assam: Jatinga, 1 female, 10.ix.09. Mizoram: Hmuifang, 1 female, 24.ix.12. (all coll. R. JOSHI). (Registration Series No. PUP/RJ-113).

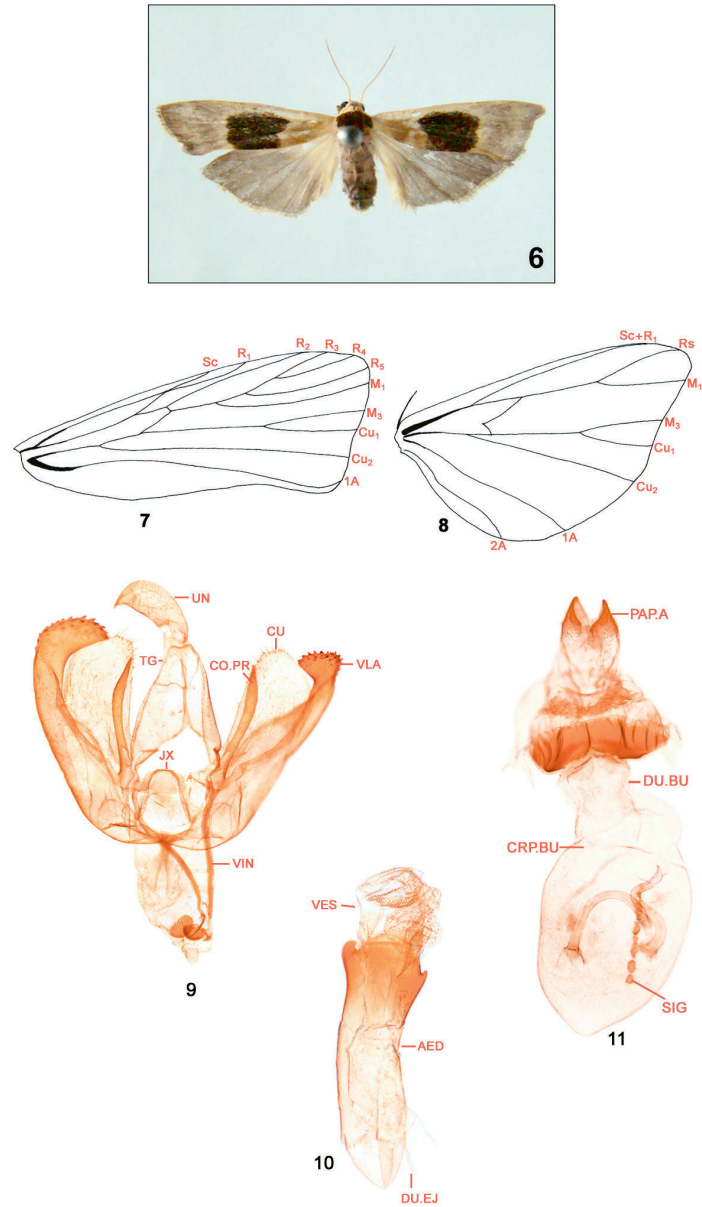
A d d i t i o n a l d e s c r i p t i o n. Male genitalia: uncus long, uniformly broad, tip pointed; tegumen long, inverted V-shape; vinculum U-shaped having setosed patches; saccus present. Valvae with long, slender, sclerotized basal costal process; costa linear, membranous; sacculus sclerotized with broad sclerotized ventral process with terminal margin dentate. Juxta bell-shaped; transtilla membranous. Aedeagus long with basal half membranous, sclerotized apically, with lateral apical spines; vesica short, membranous with some zone of sclerotisation; ductus ejaculatorius entering sub-terminally.

Female genitalia: corpus bursae membranous, balloon shaped; signum present; ductus bursae short, broad membranous; antrum strongly sclerotized; anterior apophyses as long as posterior apophyses; ductus seminalis entering ductus bursae; papilla analis sparsely setosed with long and short setae.

W i n g s p a n: male 28-29 mm; female 30 mm.

D i s t r i b u t i o n. India; Thailand; China; Peninsular Malaysia.

R e m a r k s. The species was described by ČERNÝ & PINRATANA (2009) from Thailand. It is now recorded for the first time from India. Female genitalia have also been described for the first time.



Figs 6-11. *Teulisna karenia* ČERNÝ. 6 – adult male; 7 – forewing venation; 8 – hindwing venation; 9 – male genitalia; 10 – aedeagus; 11 – female genitalia.

***Teulisna protuberans* (MOORE, 1878)**

(Figs 12-16)

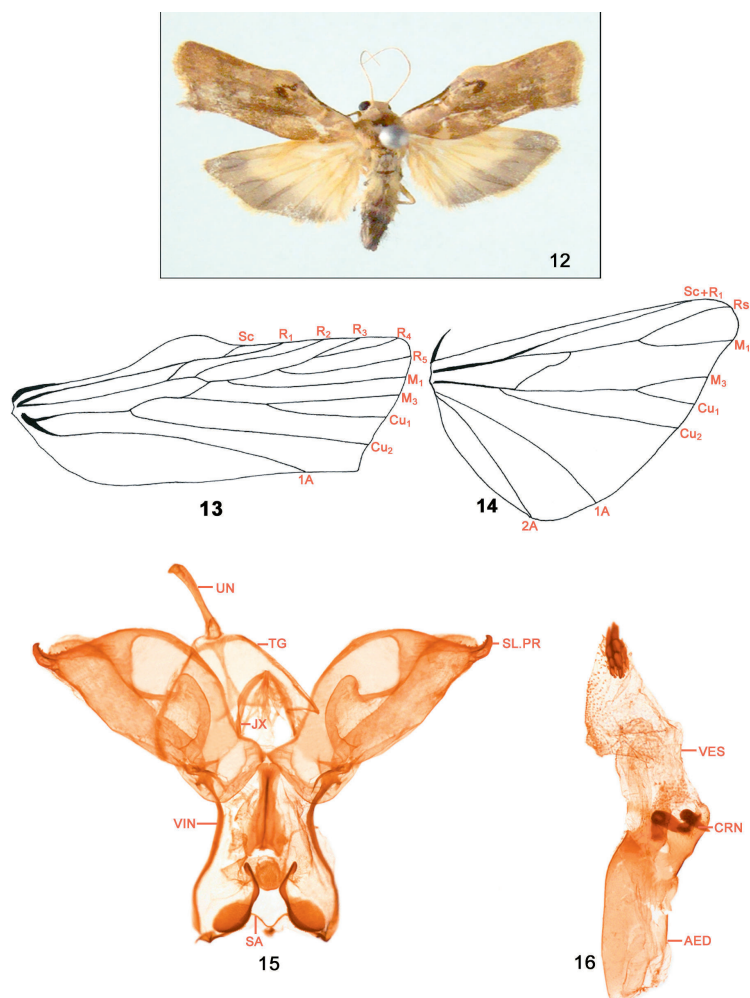
*Tegulata protuberans* MOORE, 1878, *Proc. Zool. Soc. Lond.*, **1878**: 23.

*Ilema protuberans* (MOORE); HAMPSON, 1900, *Cat. Lep. Phal. Br. Mus.*, **2**: 133-134

*Teulisna protuberans* (MOORE): ARORA & CHAUDHARY, 1982, *Tech. Mono.*, 6: 1-63.

**Material examined.** India: Mizoram: Champhai, 5 males, 25.ix. 2009; Lengpui, 1 male, 16.ix. 2008; Thingsul 3 males, 18.ix. 2009. Nagaland: Mokokchung, 1 male, 01.v. 2010; Wokha, 1 male, 30.iv.2010.; Tuensang, 2 males, 03.v. 2010. (all coll. R. JOSHI). (Registration Series No. PUP/RJ – 118).

**Additional description.** Male genitalia: uncus long, curved, broader towards apex, tip pointed; tegumen broad, as long as uncus, inverted V-shaped; vinculum long, centrally sclerotized, globular setose patches present; saccus short. Valvae broad, costa flap-like; sacculus elevated near middle; saccular process short, sclerotized, dentate and apically acute; harpe and ampulla strongly elevated. Juxta inverted V-shaped; transtilla membranous. Aedeagus broad and moderately long; vesica membranous; two curved cornuti near base, with a terminal patch of cornuti; ductus ejaculatorius entering apically.



Figs 12-16. *Teulisna protuberans* (MOORE). 12 – adult male; 13 – forewing venation; 14 – hindwing venation; 15 – male genitalia; 16 – aedeagus.



Wing span. Male 26-28 mm.

Distribution. India: Sikkim, Arunachal Pradesh, Darjeeling, Mizoram, Nagaland; Bhutan; Thailand. Faunistic limits from Nagaland and Mizoram are new.

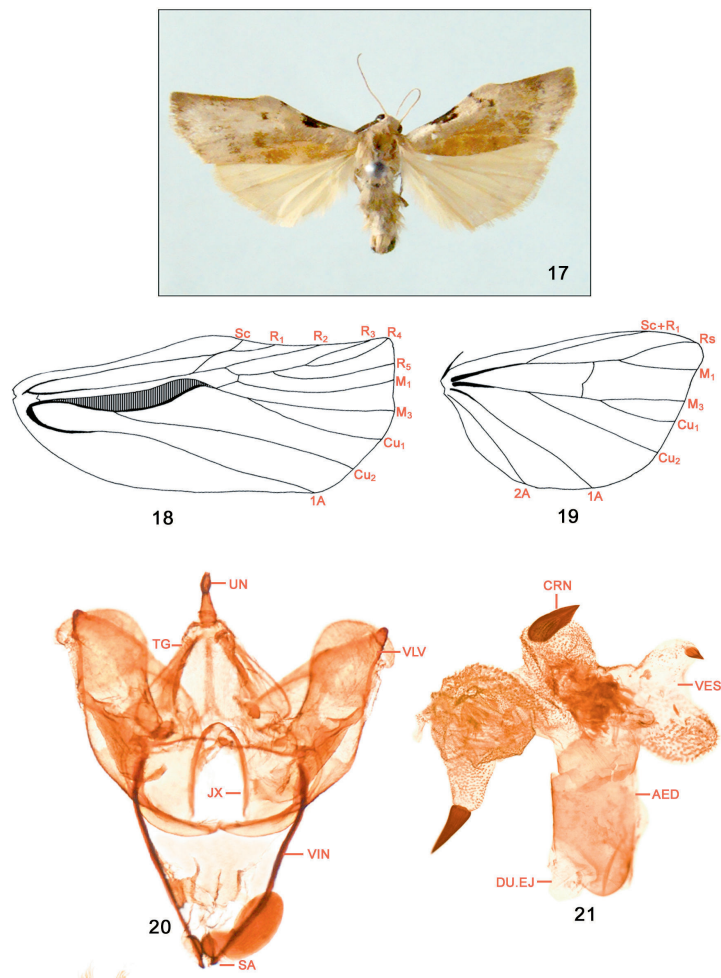
***Teulisna obliquistria* HAMPSON, 1894**

(Figs 17-21)

*Teulisna obliquistria*, HAMPSON, 1894, *Fauna Br. Ind. Moths*, **2**: 87.

*Eilema obliquistria* (HAMPSON); HAMPSON, 1900, *Cat. Lep. Phal. Br. Mus.*, **2**: 134.

Material examined. India: Assam: Jatinga, 3 males, 21.ix. 2008. Sikkim: Aritar, 1 male, 30.iv. 2009. Mizoram: Harangchalkawn, 9 males, 22.ix. 2009. (all coll. R. JOSHI). (Registration series No. PUP/RJ-119)



Figs 17-21. *Teulisna obliquistria* HAMPSON. 17 – adult male; 18 – forewing venation; 19 – hindwing venation; 20 – male genitalia; 21 – aedeagus.

**A d d i t i o n a l d e s c r i p t i o n.** Male genitalia: uncus long and broad, centrally curved with a slight dorsal ridge, tip pointed; tegumen longer than uncus, inverted V-shaped; vinculum long, sclerotized, deep V-shaped; pair of setosed patches present; saccus present. Valvae with costa broad-lamellate, apically rounded, setosed with long setae; sacculus triangular, with apex narrower and clubbed. Juxta inverted U-shaped; transtilla membranous. Aedeagus short and broad; vesica longer than aedeagus, multilobed, densely irrorated with short spines; two large cornuti and one short cornutus present; ductus ejaculatorius entering subapically.

**W i n g s p a n:** male 28 mm.

**D i s t r i b u t i o n.** Burma; India: Momeit, Sikkim.

**R e m a r k s.** The species was transferred to genus *Teulisna* from *Eilema* by SINGH et al (2014).

**An updated list of *Teulisna* species:**

1. *Teulisna bipectinis* FANG, 1900
2. *Teulisna chiloides* WALKER, 1862
3. *Teulisna curviplaga* (ROTHSCHILD, 1912)
4. *Teulisna diastrophia* (ROTHSCHILD, 1920)
5. *Teulisna divisa* WALKER, 1862
6. *Teulisna flexusa* BUCSEK, 2012
7. *Teulisna harmani* HOLLOWAY, 2001
8. *Teulisna impara* BUCSEK, 2012
9. *Teulisna karena* ČERNÝ, 2009
10. *Teulisna locus* BUCSEK, 2012
11. *Teulisna macropallida* HOLLOWAY, 2001
12. *Teulisna maculata* FANG, 2000
13. *Teulisna mithunoides* ČERNÝ, 2009
14. *Teulisna montanebula* HOLLOWAY, 2001
15. *Teulisna murina* (HEYLAERTS, 1891)
16. *Teulisna nebulosa* WALKER, 1862
17. *Teulisna nigricauda* HOLLOWAY, 1982
18. *Teulisna nigrisqama* BUCSEK, 2012
19. *Teulisna obliquistria* HAMPSON, 1894
20. *Teulisna pallidicauda* HOLLOWAY, 2001
21. *Teulisna pendleburyi* HOLLOWAY, 1982
22. *Teulisna plagiata* WALKER, 1862
23. *Teulisna protuberans* (MOORE, 1878)
24. *Teulisna pseudochiloides* HOLLOWAY, 2001
25. *Teulisna quadratella* HOLLOWAY, 2001
26. *Teulisna reflexa* HOLLOWAY, 2001
27. *Teulisna ruptifascia* (TALBOOT, 1926)



28. *Teulisna steineri* HOLLOWAY, 2001
29. *Teulisna submontana* ČERNÝ, 2009
30. *Teulisna tricornuta* HOLLOWAY, 2001
31. *Teulisna tumida* (WALKER, 1862)
32. *Teulisna unicornuta* KIRTI, JOSHI & GILL sp. nov.
33. *Teulisna uniplaga* HAMPSON, 1894
34. *Teulisna xanthura* (ROTHSCHILD, 1920)

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